Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application.

In the Claims:

Please amend the remaining claims as follows:

1. (Currently Amended) A method for evaluating parameters of a drum design of a drum for use in a helical scan tape device comprising the steps of:

(a) receiving said parameters wherein said parameters include a position of a first read head on said drum, said first read head sensing data recorded along a first azimuth;

(b) selecting a track of predetermined dimensions from a plurality of tracks;

~~simulating a the reading of one track of a plurality of tracks by calculating a the geometric area said first read head would cover as it scans over said track of predetermined dimensions~~;

(c) simulating a reading of said selected track by calculating a first read head coverage comprising a first geometric area of the selected track that would be covered by said first read head as said first read head scans over said selected track ~~determining the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said one track~~;

(d) determining that the simulated read is successful when ~~said percentage~~ a ratio of said first read head coverage to a total geometric track area of the selected track as defined by the predetermined dimensions of the selected track is greater than a predetermined coverage threshold value;

(e) repeating steps (b) through (d) for each of said plurality of tracks; and

(f) determining that said parameters are effective for a said drum design when a number of said plurality of tracks for which the simulated read was determined to be successful is greater than a predetermined error rate threshold value.

2. (Currently Amended) The method of claim 1 wherein said parameters ~~includes~~ include a position of a second read head on said drum, and

wherein the step of simulating ~~further~~ comprises ~~the step of simulating the reading of said track by~~ calculating a ~~the~~ combined head coverage comprising a geometric area of the selected track that would be covered by said first read head and by said second read head as ~~they~~ each of the first read head and the second read head scan over said selected track, said first read head sensing data recorded along a first azimuth, and

said determining step comprises determining that the simulated read is successful when a ratio of said combined head coverage to said total geometric area is greater than a predetermined combined coverage threshold value; ~~and~~

~~wherein the step of determining the amount of overlap comprises the step of determining the amount of overlap of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track~~.

3. (Currently Amended) The method of claim 1 wherein said parameters includes positions of a plurality of read heads on said drum, and

wherein the step of simulating ~~further~~ comprises ~~the step of simulating the reading of said track by~~ calculating a ~~the~~ combined head coverage comprising a geometric area of the selected track that would be covered by said plurality of read heads as ~~they~~ each of the plurality of read heads scan over said selected track, and

said determining step comprises determining that the simulated read is successful when a ratio of said combined head coverage to said total geometric area is greater than a predetermined combined coverage threshold value; ~~and~~

~~wherein the step of determining the amount of overlap comprises the step of determining the amount of overlap of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track~~.

4. (Currently Amended) The method of claim 1 wherein said parameters include a nominal tape speed and wherein the method further comprises the steps of:

(g) varying a ~~said~~ tape speed from said nominal tape speed parameter value to generate an alternate tape speed value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate tape speed values.

5. (Currently Amended) The method of claim 4 wherein said the step of varying comprises the step of:

generating an ~~said~~ alternate tape speed values as values less than or equal to 1X speed of said tape device.

6. (Currently Amended) The method of claim 1 wherein said parameters include a nominal gap width and wherein the method further comprises the steps of:

(g) varying ~~said~~ gap width from said nominal gap width parameter value to generate an alternate gap width value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate gap width values.

7. (Currently Amended) The method of claim 1 wherein said parameters include a nominal head offset spacing and wherein the method further comprises the steps of:

(g) varying a ~~said~~ head offset spacing from said nominal head offset spacing parameter value to generate an alternate head offset spacing value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate head offset spacing values.

8. (Currently Amended) A method for evaluating parameters of a drum design of a drum for use in a helical scan tape device comprising the steps of:

(a) receiving said parameters wherein said parameters include a position of a first read head on said drum and a position of a second read head on said drum, said first read head sensing data recorded along a first azimuth and said second read head sensing data recorded along said first azimuth;

(b) selecting a track of predetermined dimensions from a plurality of tracks;

~~simulating the reading of one track of a plurality of tracks by calculating a first geometric area said first read head would cover as it scans over said track of predetermined dimensions and by calculating a second geometric area said second read head would cover as it scans over said track;~~

(c) simulating a reading of said selected track by calculating a first read head coverage comprising a first geometric area of the selected track that would be covered by said first read head as said first read head scans over said selected track and calculating a second read head coverage comprising a second geometric area of the selected track that would be covered by said second read head as said second read head scans over said selected track ~~determining the amount of overlap of said first geometric area as a first percentage of the area defined by said predetermined dimensions of said track and the amount of overlap of said second geometric area as a second percentage of the area defined by said predetermined dimensions of said track~~;

(d) determining that the simulated read is successful when either ~~said first percentage~~ a first ratio of said first read head coverage to a total geometric track area of the selected track as defined by the predetermined dimensions of the selected is greater than a predetermined coverage threshold value, or ~~said secondt percentage~~ a second ratio of said second read head coverage to a total geometric track area of the selected track as defined by the predetermined dimensions of the selected is greater than said predetermined coverage threshold value;

(e) repeating steps (b) through (d) for each of said plurality of tracks; and

(f) determining that said parameters are effective for a said drum design when a number of said plurality of tracks for which the simulated read was

determined to be successful is greater than a predetermined error rate threshold value.

9. (Original) The method of claim 8 wherein said parameters include a nominal tape speed and wherein the method further comprises the steps of:

(g) varying said tape speed from said nominal tape speed parameter value to generate an alternate tape speed value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate tape speed values.

10. (Currently Amended) The method of claim 9 wherein said the step of varying comprises the step of:

generating an ~~said~~ alternate tape speed values as values less than or equal to 1X speed of said tape device.

11. (Currently Amended) The method of claim 8 wherein said parameters include a nominal gap width and wherein the method further comprises the steps of:

(g) varying a ~~said~~ gap width from said nominal gap width parameter value to generate an alternate gap width value; and

(h) repeating steps (b) through (g) for each of a plurality of alternate gap width values.

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

~~12~~ 18. (Currently Amended) A drum evaluation simulator which evaluates parameters of a drum design for use in a helical scan tape device comprising:

a parameter receiving element for receiving said parameters wherein said parameters include a position of a first read head on said drum;

a read simulation element which simulates a reading of a track of predetermined dimension by calculating a first read head coverage comprising a first geometric area of the track that would be covered by said first read head as said first read head scans over said selected track ~~for simulating the reading of one track of a plurality of tracks by calculating the geometric area said first read head would cover as it scans over said track of predetermined dimensions~~; and

a coverage determination element which determines a ratio of said first read head coverage to a total geometric track area of the track as defined by the predetermined dimensions of the track ~~for determining the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said track~~.

~~13~~ 19. (Currently Amended) The drum evaluation simulator of claim ~~1~~ 18 wherein said parameters includes a position of a second read head on said drum, and

wherein the read simulation element simulates the reading of said track by calculating a ~~the~~ combined head coverage comprising a geometric area of the track that would be covered by said first read head and by said second read head as ~~they~~ each of the first read head and the second read head scan over the track, said first read head sensing data recorded along a first azimuth, and

wherein the coverage determination element determines a ratio of said combined head coverage to said total geometric track area ~~the amount of overlap~~

~~of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track~~.

~~14~~ 20. (Currently Amended)The drum evaluation simulator of claim ~~1~~ 18 wherein said parameters includes positions of a plurality of read heads on said drum, and

wherein the read simulation element simulates the reading of said track by calculating a combined head coverage comprising a geometric area of the track that would be covered by said plurality of read heads as each of the plurality of read heads scan over said track ~~calculating the combined geometric area that would be covered by said plurality of read heads as they scan over said track~~, and

wherein the coverage determination element determines a ratio of said combined head coverage to said total geometric track area ~~the amount of overlap of said combined geometric area as a percentage of area defined by said predetermined dimensions of said track~~.

~~15~~ 21. (Currently Amended)The drum evaluation simulator of claim ~~1~~ 18 wherein said parameters include a nominal tape speed and wherein:

the read simulation element varies ~~said~~ a tape speed from said nominal tape speed parameter value to generate an alternate tape speed value; and

the coverage determination element determines a ratio of said first read head coverage to said total geometric track area ~~the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said track~~ for said alternate tape speed value.

~~16~~ 22. (Currently Amended)The drum evaluation simulator of claim 4 21 wherein said read simulation element generates said alternate tape speed values as values less than or equal to the nominal speed of said tape device.

~~17~~ 23. (Currently Amended)The drum evaluation simulator of claim ~~1~~ 18 wherein said parameters include a nominal gap width and wherein:

the read simulation element varies said gap width from said nominal gap width parameter value to generate an alternate gap width value; and

the coverage determination element determines the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said track for said alternate gap width value.

~~18~~ 24. (Currently Amended) The drum evaluation simulator of claim ~~1~~ 18 wherein said parameters include a nominal head offset spacing and wherein:

the read simulation element varies said head offset spacing from said nominal head offset spacing parameter value to generate an alternate head offset spacing value; and

the coverage determination element determines the amount of overlap of said geometric area as a percentage of the area defined by said predetermined dimensions of said track for said alternate head offset spacing value.